518.52 Repair of Upward Facing Surfaces-≥ 200 mm [7.9 in]	M^3 [Cubic Yard]
518.60 Repair of Vertical Surfaces < 200 mm [7.9 in]	M^2 [Square Foot]
518.61 Repair of Vertical Surfaces ≥ 200 mm [7.9 in]	M^3 [Cubic Yard]
518.70 Repair of Overhead Surfaces < 200 mm [7.9 in]	M^2 [Square Foot]
518.71 Repair of Overhead Surfaces ≥ 200 mm [7.9 in]	M^3 [Cubic Yard]

SECTION 519 - VACANT

SECTION 520 - EXPANSION DEVICES - NON-MODULAR

520.01 Description This work shall consist of furnishing and installing expansion devices including the seals, anchorage system and curb, sidewalk expansion dams and barrier sliding plates, where required, as shown on the plans and in accordance with these specifications.

Seals for expansion devices shall be either gland seals or compression seals as specified on the plans.

520.02 Materials Materials shall meet the requirements specified in the following Sections of Division 700 - Materials:

Expansion Device - Gland Seal	
Anchor Studs	711.06
Structural Steel	713.01
High Strength Bolts	713.02
Steel Extrusions	713.08
Elastomer for Seal Elements	714.01
Lubricant-Adhesive	714.03
Gland Type Seals	714.06
Expansion Device - Compression Seal	
Anchor Studs	711.06

Structural Steel	713.01
High Strength Bolts	713.02
Elastomer for Seal Elements	714.01
Lubricant-Adhesive	714.03
Sealant	714.04
Compression Seals	714.05

Gland and compression seals shall be of the general configuration as shown on the contract documents and shall be one of the seals listed on the Maine Department of Transportation Prequalified List of Approved Products. (See www.state.me.us/mdot/planning/product).

Acceptance of the materials for Expansion Devices will be based on a Materials Certification Letter as specified in Division 700 - Materials.

520.03 Fabrication All work shall conform to the applicable provisions of Section 504- Structural Steel.

Seals shall be furnished and installed in one continuous length and splices will not be allowed except as specified hereafter.

As received from the supplier of the seal, seals may contain one splice for each continuous length of 15 m [50 ft] or greater. Sections under 15 m [50 ft] long shall not have any splices. Splices at abrupt angular changes in horizontal alignment will be allowed. Splices in gland type seals shall be shop vulcanized by the seal supplier. Splices in compression seals may be either vulcanized or adhesive bonded. At abrupt angular changes in vertical alignment, the lower 75% of the depth of compression seals may be cut to allow short radius bends.

520.04 Protective Coating The expansion device, including the curb and sidewalk expansion dams and barrier sliding plates, shall be galvanized in accordance with the requirements for Protective Coating in Section 504 - Structural Steel. The galvanizing on the metal surfaces in direct contact with neoprene seals shall be lightly sandblasted to a dull gray appearance in order to promote a high strength bond between the seal and mating surface, and for smoothness for installation purposes. Alternately, this galvanized surface may be prepared to the manufacturer’s published recommendations for installation and bonding of seals.

When specified on the contract plans, reinforcing steel shall be anchored into drilled holes.

520.05 Delivery Unless otherwise specified on the plans, expansion devices shall be shipped fully assembled and shall be installed as a unit. The unit shall be equipped with shipping and temperature adjustment devices approved by the Fabrication Engineer, and shall be preadjusted, in the shop, to the opening required at 7°C [45°F].

520.06 Installation Expansion Devices shall be erected following placement of the structural deck slab. The devices shall be lowered in the blocked-out area of the deck slab, adjusted for the temperature as directed by the Resident, set to the proper height and fastened in place, in accordance with the Standard Details. Immediately following this, all shipping and temperature adjustment devices shall be removed and the blocked-out concrete for the slab and abutment backwall may be placed.

Seal elements shall be installed in accordance with the manufacturer's recommendations, using equipment manufactured specifically for the installation of said element. The equipment shall not cause structural damage to either the seal or the joint armor and shall not twist, distort or cause other malformations in the installed seal element. Any perforation or tearing of a seal element due to installation procedures or construction activities will be cause for rejection of the installed seal element.

Immediately prior to the installation of the seal element, the metal contact surfaces of the joint armor shall be clean, dry, and free of oil, rust, paint, or foreign material. The contact surfaces of the seal element shall be cleaned with normal butyl-acetate, using clean rags or mops, immediately prior to application of the lubricant-adhesive or sealant. The lubricant adhesive or sealant shall be applied to the seal element and joint armor contact surfaces at the rate recommended by the manufacturer of the seal.

The exposed ends of compression seals shall be sealed with appropriately shaped pieces of foam rubber, bonded in place with sealant as described in Section 714.04 - Sealant, or a bonding agent approved by the Resident.

520.07 Method of Measurement Expansion devices will be measured by each unit, complete in place and accepted. Each unit shall consist of one pair of matching elements, including anchorage system, seal, shipping and temperature adjustment devices, curb and sidewalk expansion dams and barrier sliding plates, as required.

520.08 Basis of Payment The accepted quantity of expansion devices will be paid for at the contract unit price each,

which shall be full compensation for all materials including anchorage system, protective coating, equipment, labor and incidentals necessary for furnishing and installing the expansion devices and, if required, curb and sidewalk expansion dams and barrier sliding plates.

Payment will be made under:

Pay Item		Pay Unit
520.21	Expansion Device - Gland Seal	Each
520.22	Expansion Device - Compression Seal	Each

SECTION 521 - FINGER JOINT AND FABRIC TROUGH/FABRIC CURTAIN

521.01 Description This work shall consist of fabricating and installing finger joint expansion devices and fabric troughs or fabric curtains when required, including the anchorage system, curb and sidewalk expansion dams, barrier sliding plates as required, support components for fabric troughs or curtains when required, and any metal downspout(s) and/or chute(s) used to guide the discharge from the trough(s) when required, and all necessary materials and equipment required to complete the work as shown on the plans and in accordance with these specifications.

521.02 Materials - Finger Joints Plates requiring a non-skid surface shall conform to the requirements of ASTM A786/A786M, ASTM A36/A36M. Other plates shall conform to the requirements of ASTM A36/A36M or ASTM A572/A572M. Shapes shall conform to the requirements of ASTM A500, Grades A and B, or ASTM A992/A992M. Other weldable steels may be used with approval of the Fabrication Engineer. Anchor studs shall conform to the requirements of Section 711.06 - Stud Shear Connectors, Anchor and Fasteners. Bolts shall conform to the requirements of AASHTO M169/M169M (ASTM A325/A325M).

521.03 General All work shall conform to the applicable provisions of Section 504 - Structural Steel. Completed expansion devices and any required support components for troughs or curtains, expansion dams, barrier sliding plates, downspouts and chutes shall be hot dipped galvanized to the requirements of AASHTO M111 (ASTM A123). Anchorage parts encased in concrete may be supplied in the ungalvanized condition.